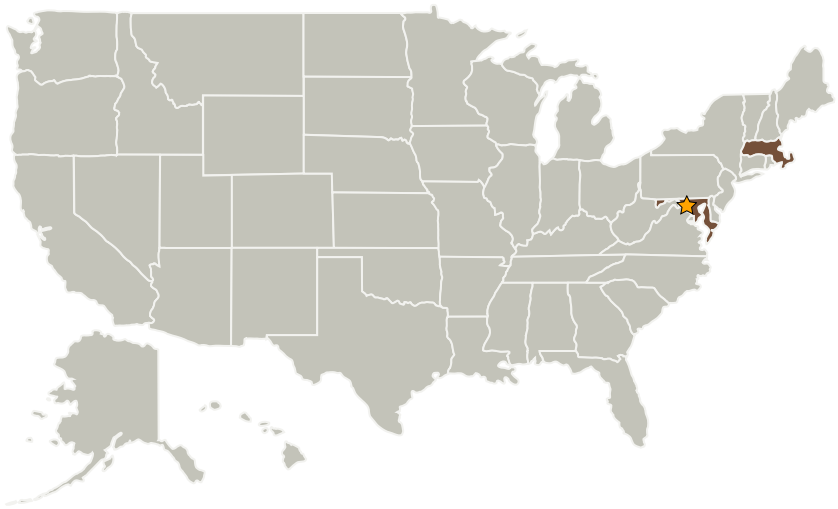
Dual-Frequency L-Band Antenna Array with Integrated Transmit/Receive Modules, Phase I

Completed Technology Project (2004 - 2004)

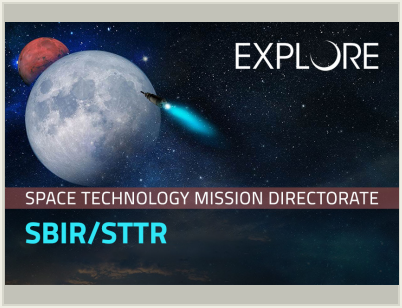
Project Introduction

In this Phase I SBIR proposal we describe our plan to develop two key technologies for future combined radar/radiometer systems operating at L-band. The first, a dual frequency, dual polarization microstrip antenna array, will allow a 1.2 GHz radar and a 1.4 GHz radiometer to share a single aperture. The second, an integrated transmit/receive (T/R) module, will combine a 2W transmitter with digital phase and amplitude control with a low-noise down-converting receiver. Phase I research will involve selecting appropriate broadband patch and feed network designs, evaluating their performance using GENESYS, a commercial RF simulation package. Candidate T/R module designs will also be evaluated using GENESYS. The imaging capability of the resultant designs will be tested on realistic ocean and land scenes using a custom software package developed by ProSensing.

Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
★Goddard Space Flight Center(GSFC)	Lead Organization	NASA Center	Greenbelt, Maryland
ProSensing Inc.	Supporting Organization	Industry	Amherst, Massachusetts



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Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Center / Facility:

Goddard Space Flight Center (GSFC)

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

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Primary U.S. Work Locations	
Maryland	Massachusetts

Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Principal Investigator:

James Mead

Technology Areas

Primary:

- TX08 Sensors and Instruments
  - TX08.1 Remote Sensing Instruments/Sensors
    - TX08.1.4 Microwave, Millimeter-, and Submillimeter-Waves